

*Specimens examined:* Specimens of most of the subspecies of *Habia rubica*, from both Central and South America, are available at Carnegie Museum. I am indebted to Mrs. Albert Stickney of the Peabody Museum of Natural History, Yale University, and to Dr. Emmet R. Blake of the Field Museum of Natural History, for lending me critical supplementary specimens. The detailed comparisons were made with the following:

*H. r. rubra:* Trinidad (various localities), 9.

*H. r. crissalis:* Venezuela, Sucre: Mirasol, 2; El Yaque, 3; Yacua, 2; Pargo, 2.

*H. r. mesopotamia:* Venezuela, Bolívar: Río Yuruán, 8.

*H. r. coccinea:* Colombia, Boyacá: La Colorada, 5 (including type); Venezuela, Mérida: Azulita, 3.

*H. r. rhodinolaema:* Colombia, Meta: Sierra de Macarena, 2.

*H. r.* subsp. Colombia, Magdalena: El Cauca, 1.

## More weights of the Carmine Bee-eater

by P. L. Britton and R. J. Dowsett

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Dowsett weighed 105 breeding adult Carmine Bee-eaters *Merops nubicus nubicoides* Des Murs and Pucheran at two colonies near Mfuwe in the Luangwa Valley, Zambia (13° 7' S., 31° 45' E.) in October 1966. All birds were weighed at dawn, before they had fed. Their weights ranged from 44.5 to 65.0 gm., average 54.4 ± 4.1 gm. At colony A, 24 birds on 1st October averaged 56.5 gm.; at colony B, 55 birds on 9th October and 40 (including 14 recaptures) on 15th October averaged 53.6 and 53.8 gm. respectively. However, although there is virtually no difference in mean weight between the birds on 9th October and those on 15th October, birds recaptured on 15th October showed the following differences from 9th October: fourteen had decreased by 1.0-15.0 gm., average 4.5 gm.; two showed no change; and two had gained 1.5 and 2.0 gm. respectively.

If colony B mean weight is compared with the colony A mean weight, using a *t*-test, the difference between the means is statistically significant ( $P < 0.01$ ), colony B birds being the lighter. As all birds can be considered members of a single Luangwa population, and all colony A birds were weighed before any colony B birds, this difference, together with recapture evidence, indicates a weight loss in adults during the first two weeks of October.

Britton (1967) has discussed weight variation in this species (under the name *M. nubicoides*) in detail, using data obtained at Beatrice, Rhodesia (18° 17' S., 30° 57' E.) Having allowed for the fact that Dowsett's birds were weighed at dawn, by reducing Beatrice means by 1.0 gm. (see fig. 1 in Britton, 1967), the September (dry season) Beatrice weights, which form the lightest series for that locality, average 60.1 gm. compared with 54.4 gm. for October (also dry season) Luangwa birds. Most young at both Luangwa colonies had hatched in the last few days of September, and it is generally recognised that, all other factors remaining constant, weights are very low during the period when young are being fed (Nice, 1938). This was not, however, the case at Beatrice where young in 1965 did not hatch until early November, after the rains had begun; the October Luangwa birds were feeding young in the dry season. Britton considered it likely that the rains

caused food supplies to increase so that feeding of the young was not the burden that it would otherwise have been. This apparent increase in food supply seemed to more than compensate the effect of any increased physiological strain, so that weights were higher when young were being fed than in the pre-laying period. The low Luangwa weights are to be expected, then, as the birds were carrying the full burden of feeding the young on possibly meagre food supplies.

It is likely that any weight loss in adults associated with the feeding of young will continue until the young are fledged, as naturally the bigger the young in the nest, the more food they will consume. Such an argument might explain the apparent weight loss during the latter part of the breeding season. But there is the complication of the growth pattern of the young of hole-nesting birds, which reach their maximum pre-fledging weight (larger than their fledging weight) some days before leaving the nest: see, for example, Skutch (1967) while Dr. C. H. Fry (in prep.) has considerable evidence of such a pattern in *Merops bulocki* in Nigeria.

Eighty wing lengths for Luangwa birds have a mean of 153 mm. compared with 151 mm. for Beatrice birds (table 2 in Britton, 1967). The considerable difference in average weight between Luangwa birds and Beatrice birds, as discussed above, is unlikely to be the result of geographical size variation within the species, as the two localities are only 360 miles apart. Some of this difference could, however, be explained by Bergmann's Rule, as the altitude of Beatrice is 4,400 feet compared with 1,800 feet for Mfuwe. But as the minor difference suggested by the average wing measurements contradicts Bergmann's Rule, the weight difference discussed is probably physiological in origin.

#### SUMMARY

105 Luangwa breeding Carmine Bee-Eaters *Merops nubicus nubicoides* were very light in weight and it is suggested that this is because young were being fed in the dry season on possibly meagre food supplies. There is evidence of a weight loss in adults between 1st October and 16th October, possibly as a result of an increased demand upon the adults when the nestlings grow larger.

#### ACKNOWLEDGMENTS

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#### References:

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## Recent records new to the North Atlantic islands

by *D. A. Bannerman*

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During the progress of the four-volume work on the birds of the Canaries, Madeiran Islands, Azores and Cape Verde Islands (1963-1968) upon which my wife and I have been engaged, a certain number of species made their appearance in the islands for the first time too late for inclusion in the appropriate volume. It was our custom therefore to include details of these